
GENERAL NOTICES • ALGEMENE KENNISGEWINGS

DEPARTMENT OF ENVIRONMENTAL AFFAIRS**NOTICE 897 OF 2015****NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 2004
(ACT NO. 10 OF 2004)****NON-DETRIMENT FINDINGS**

I, Bomo Edith Edna Molewa, Minister of Environmental Affairs, hereby give notice of my intention to publish the non-detriment findings made by the Scientific Authority, in terms of Section 62 of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), set out in the Schedule hereto. A detailed non-detriment findings is available on the following website address: <http://www.environment.gov.za/>.

Members of the public are invited to submit to the Scientific Authority, within 30 days after the publication of the notice in the *Gazette*, written scientific information relating to the non-detriment findings to the following addresses:

By post to: The Chairperson of the Scientific Authority
 South African National Biodiversity Institute
 Attention: Ms M Pfab
 Private Bag X101
 PRETORIA
 0001

By hand at: 2 Cussonia Avenue, Brummeria, Pretoria, 0001.

By e-mail: m.pfab@sanbi.org.za or by fax to: 086 555 9863.

Comments received after the closing date may not be considered.



BOMO EDITH EDNA MOLEWA
MINISTER OF ENVIRONMENTAL AFFAIRS

SCHEDULE
NON-DETRIMENT FINDINGS

1. *Aloe plicatilis* (Reference Number: Alo_pli_May2015)

Summary of finding

Aloe plicatilis (the fan aloe) is included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). In terms of Article IV of the Convention, an export permit shall only be granted for an Appendix II species when a Scientific Authority of the State of export has advised that such an export will not be detrimental to the survival of that species in the wild. This document details the undertaking of a Non-Detriment Finding (NDF) for *Aloe plicatilis* and is based on the best available information, current as of May 2015.

Aloe plicatilis is endemic to the Boland region of the Western Cape. The species has a restricted distribution between the mountains north of Tulbagh and the mountains southeast of Franschhoek, and occurs in fragmented subpopulations of 30 to >100 000 plants. *Aloe plicatilis* plants grow mostly in exposed open areas, and sometimes among other shrubs and trees, and are typically confined to well-drained, acidic soils on steep rocky slopes and rocky outcrops that afford plants some protection from fynbos fires. The known national population comprises 31 subpopulations and the abundance of the species is estimated to be well over the 153 000 individuals estimated for the 19 subpopulations surveyed by Cousins *et al.* (2014) during a detailed study of the species' population biology and ecology.

The well-branched shrub/ small tree aloe is relatively slow growing with adult plants averaging 1.5 m – 2 m in height at an age of > 50 – 70 years. Exceptionally large individuals may reach 4 m – 5 m and are possibly older than 130 – 160 years. *Aloe plicatilis* regenerates mainly sexually by seed produced by reproductive adults every summer, but can also propagate asexually by means of branches that break off and root. Seed dispersal however is limited and poor (Cousins *et al.* 2013). Populations of the species are generally dominated by medium-to-large adults with sparse seedlings, indicative of slow seedling recruitment (Cousins *et al.* 2014). The short-term study conducted on the population biology of the species indicated that the population is apparently stable. *Aloe plicatilis* subpopulations were confirmed to be extant at all nine historically known localities, and the majority of the 19 subpopulations surveyed in 2014 had stable size structures with adequate numbers of small, medium and large individuals present. Only two subpopulations showed no evidence of recent seedling recruitment and only one was apparently in decline.

The predominant threat to *A. plicatilis* is invasive alien species encroachment. Although fairly small and/or light infestations of alien tree species have been recorded in 12 *A. plicatilis* subpopulations, these alien species spread relatively rapidly. The fire frequency in the Boland Mountains is increasing, and repeated short interval fires are therefore a potential threat to *A. plicatilis*.

Although it can be difficult to grow outside of its natural distribution, the striking and unusual appearance of the species makes *A. plicatilis* a popular garden plant. Most of the demand for the species is met by plants propagated in nurseries. At least seven nurseries in the Western Cape sell *A. plicatilis* plants. Nurseries usually stock small plants in small quantities (5-20 plants) and larger plants (stems less than 1 m tall) are occasionally available. *Aloe plicatilis* has been propagated from tissue culture in fairly large numbers. Between 2002 and 2011, a total of 4119 *A. plicatilis* specimens were exported from South Africa (CITES Trade Database, UNEP World Conservation Monitoring Centre, Cambridge, UK). Approximately 25% of these specimens were reported to be wild-sourced; however,

an export of 500 plants in 2006 was later confirmed to have been erroneously reported as source code "wild". Data for exports of *A. plicatilis* from South Africa are effectively monitored by South Africa's Scientific Authority, although the quality of the data is not as good as it should be due to errors in reporting. There is currently no monitoring programme for the species.

Limited illegal wild harvesting of plants has had a negligible impact on the species. While no direct evidence of harvesting was observed at any of the subpopulations studied by Cousins *et al.* (2014), there have been two confirmed illegal harvesting events of *A. plicatilis* – one on privately owned land outside of Worcester and the other from an area in Du Toit's Kloof. In 2012 an estimated 50-100 *A. plicatilis* plants were observed for sale at a succulent nursery outside Robertson. These individuals were too large to have been propagated from seed relative to the time at which they were reportedly germinated.

Aloe plicatilis is well protected, with fourteen of the 31 known subpopulations occurring in reserves managed by CapeNature. Access to CapeNature reserves, either by car or on foot, is not granted without a permit, and this system appears to be well-managed. Fencing is however inadequate and some subpopulations occurring in the vicinity of public roads are easily accessible by car or on foot. The species is also listed as a protected plant in the Western Cape Nature Conservation Laws Amendment Act No. 3 of 2000. No permits have ever been issued for the harvest of wild *A. plicatilis* plants. There is no quota system for harvesting *A. plicatilis* from the wild and there is no management plan for the species. CapeNature does not have sufficient staff capacity or the required budget to implement existing harvest controls and there is currently a lot of illegal harvesting of plants in the Boland region and in the fynbos in general.

Excepting for large plants (with stems greater than 1 m tall), the demand for *A. plicatilis* is largely met by plants propagated in nurseries from seed or through tissue culture and there is no evidence to suggest that current international trade is detrimental to the species. As such, the export of artificially propagated specimens may continue. Under the current scenario discussed above, export of wild-sourced specimens would place the wild population of *A. plicatilis* at a moderate to high risk of overharvesting and render trade detrimental (Figure 1, point A in Figure 2). Available data suggest that there are however methods that could be employed to ensure sustainable harvest, but the management system for the species must be improved (point B in Figure 2) before wild harvest can be considered. Any wild harvest must be conducted in accordance with a harvest plan that specifies restrictions to prevent overuse, and this must be accompanied by monitoring, improved access control to wild populations and a dedicated permitting system.

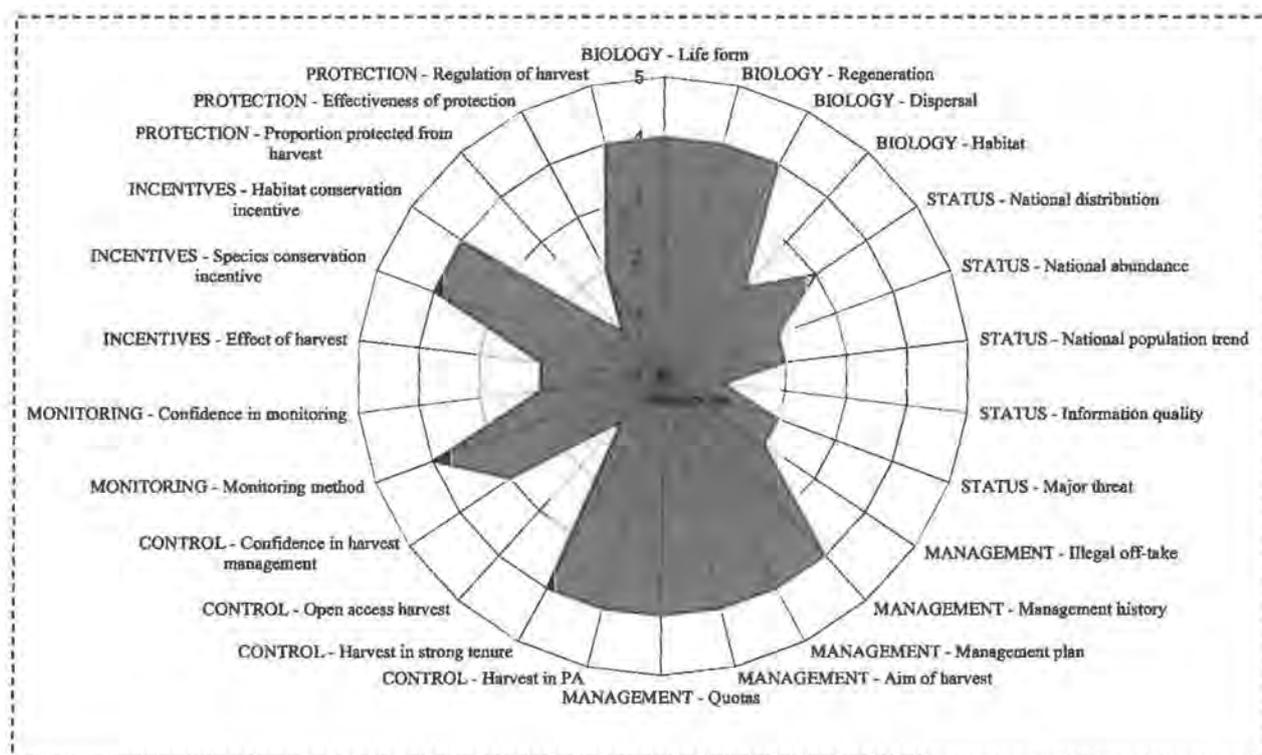


Figure 1. Radar chart summarizing the non-detriment finding assessment undertaken for *Aloe plicatilis* in accordance with the CITES NDF checklist. Explanations of scores given are detailed in Table 1. Higher scores are indicative of higher risks to the species. The shaded area in the radar chart demonstrates a moderate to high risk to the species.

2. *Damaliscus pygargus pygargus* (Reference Number: Dam_pyg_pyg_May2015)

Summary of findings

Damaliscus pygargus pygargus (bontebok) is included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Bontebok are currently hunted for trophies in South Africa, with 77% (a total of 2007 specimens) of international exports between 2002 and 2011 reported as trophies. In terms of Article IV of the Convention, an export permit shall only be granted for an Appendix II species when a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species. Bontebok is also currently listed as Vulnerable in terms of section 56 of the National Environmental Management: Biodiversity Act (NEMBA) No. 10 of 2004; as Near Threatened on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species; and as Vulnerable according to the Red Data Book of Mammals of South Africa (SARDB 2004). A non-detriment finding (NDF) for this subspecies is therefore required. This document details the undertaking of a NDF (Figure 1) for bontebok and is based on the best current available information. This information is current as of May 2015.

The bontebok is endemic to the southern parts of the Western Cape in South Africa with its natural distribution range limited to a narrow band along the coastal plains of the Overberg region. Of the vegetation types within the bontebok's natural and extended natural distribution range, more than 50% are listed as critically endangered, with a further 26% listed as either endangered or vulnerable, in terms of section 52 of NEMBA. The status and limited availability of habitat for bontebok within the natural distribution range thus necessitated CapeNature to adopt a policy that would enable the

extension of the bontebok range through translocation. The keeping of this subspecies by private land owners outside of the natural distribution was therefore allowed by CapeNature and a buffer population was created from which populations within the natural distribution range could be augmented within a meta-population management approach. Bontebok has also been translocated extensively outside of its extended natural distribution range to the rest of the Western Cape, as well as to the Free State, North West, Eastern Cape and Northern Cape provinces. The total population is estimated at 7 162 animals of which approximately 2 177 animals currently occur within the natural and extended natural distribution range within the Western Cape. This is a conservative estimate as several private properties keeping bontebok within the provinces are unaccounted for in this analysis. The minimum number of bontebok outside of its natural distribution range is thus estimated at 4 985 animals. The population is fragmented with the majority of the populations on private land consisting of less than 20 animals. While populations within protected areas seem to be stable, bontebok numbers on private properties (accounting for around 80% of the national population) are increasing.

The bontebok is long-lived with animals recorded to live up to 15 years in captivity. Their reproductive rate is low due to the long gestation period of approximately 240 days and the production of a single lamb in spring. The bontebok is a short grass specialist that does not adapt well to other vegetation types. It is considered a medium-ability disperser (its dispersal abilities considered to be neither good nor poor) within a localised range and at present dispersal is severely limited by fences. The subspecies is tolerant of human activities and bontebok appear to do well on old cultivated fields where short grasses proliferate. They have adapted well in areas outside their natural and extended natural distribution range where suitable habitats occur such as in the Free State.

The current, predominant threat to the bontebok is the large number of highly fragmented and small subpopulations in the absence of meta-population management. However within the natural and extended natural distribution range, an additional major threat is loss of habitat which is severe and in some cases irreversible. Further concerns relate to the low levels of genetic diversity within bontebok, a result of the subspecies being hunted to near extinction in the 1930's, and hybridisation of bontebok with blesbok (*Damaliscus pygargus phillipsi*). The full extent to which hybridization has occurred is unknown.

Even though bontebok are currently exported as hunting trophies, no quotas are in place. Hunting of the subspecies on private land where land owners have been awarded exemption in terms of provincial conservation legislation is not regulated or monitored. Hunting is also allowed in some provincial protected areas throughout its range while harvesting by live off-takes occurs on provincial nature reserves as well as National Parks. The overall aim of harvesting at present is mostly population management/control and to facilitate the growth of the national meta-population, but in some cases also economic gain. Hunting of bontebok, only when international export is required, is monitored through reporting of CITES exports, while translocation is monitored through a permit system on a case by case basis, but the effects of harvesting (on heterozygosity and fitness for example) are not currently monitored. Due to budgetary and capacity constraints, there is a medium confidence in the national monitoring of exports and the monitoring of the effects of harvest. The national management system for bontebok is informal as there is no set structure with activities measured against a larger adaptive framework. In some cases local management plans are available but there is no approved national plan that is aimed at managing the genetic integrity of bontebok.

At present, hunting of bontebok does not occur in any National Parks nor within some of the provincial protected areas. Therefore more than 5% of the subspecies is afforded strict protection by protected areas within its natural and extended natural distribution range. Budgetary and capacity constraints have lowered the confidence in the effectiveness of measures taken to afford strict protection. No

restrictions on harvesting to prevent overuse are currently in place. The conservation value accrued for the subspecies through harvesting is high due to the high economic value of bontebok at present. Incentives for habitat conservation however are low due to limited land available within the species' natural and extended distribution range and also because private land owners are allowed to stock bontebok outside of its natural distribution range. Bontebok could however be used as a flagship species for the protection of critically endangered habitats within its natural distribution range.

In conclusion, the non-detriment finding (Figure 1A) undertaken for bontebok as summarised in the analysis of the key considerations above, demonstrates that legal local and international trade in live animals and the export of hunting trophies at present poses a moderate risk to the survival of this subspecies in South Africa, which can neither be deemed detrimental nor non-detrimental (Figure 2A). This moderate risk however is mostly due to a lack of management and monitoring of bontebok off-takes. With the development and effective implementation of a Biodiversity Management Plan (BMP) in terms of section 43 of the NEMBA to improve both management and monitoring, trade will be non-detrimental (Figure 1B & 2B). It is recommended that the BMP includes a meta-population management plan and addresses the following:

1. The long term monitoring of harvest in the form of translocation and trophy hunting,
2. Guidelines for the management and regulation of harvest,
3. Incentives to increase habitat conservation benefits from the harvest of bontebok, especially within the natural and extended natural distribution range.

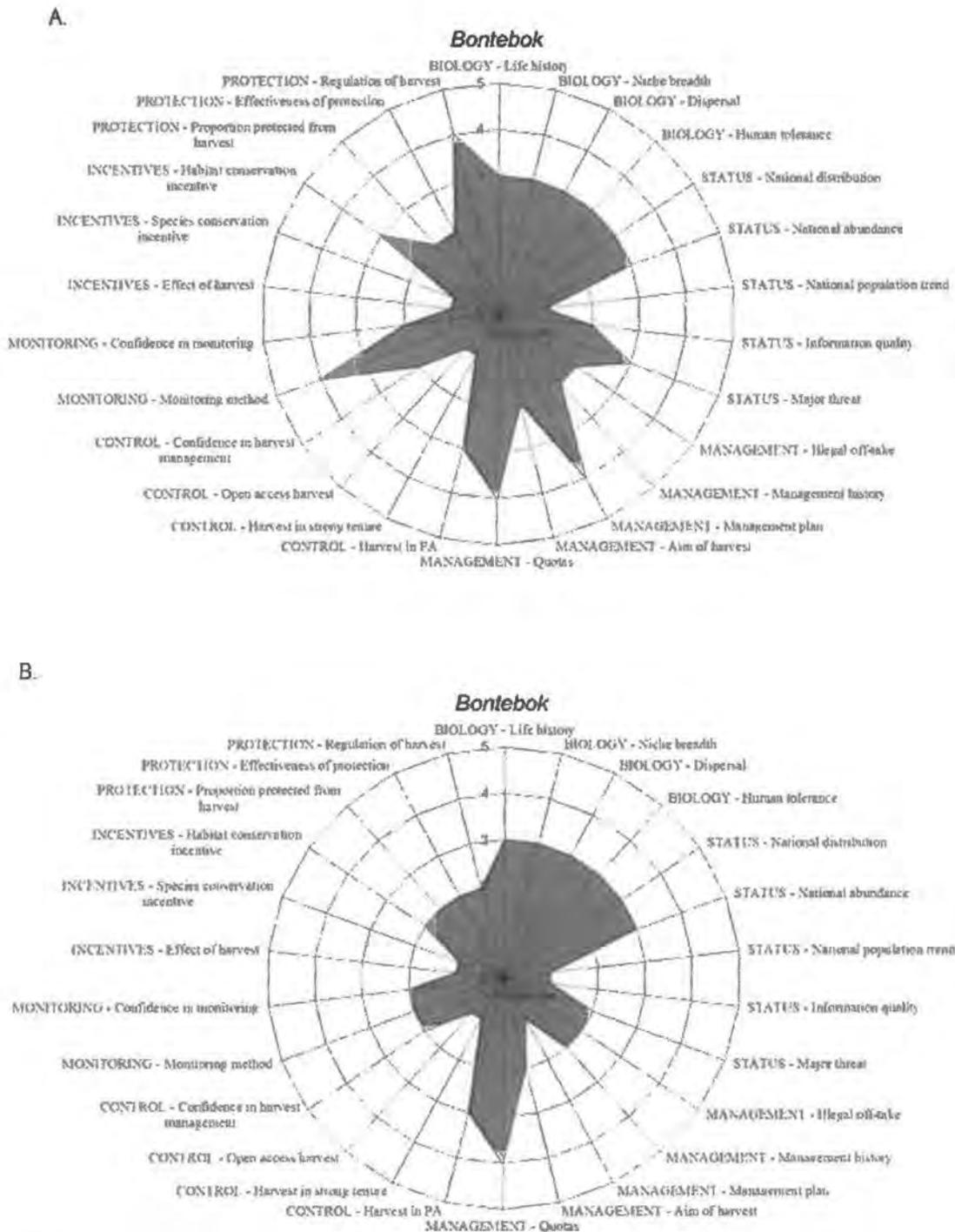


Figure 1: Radar chart summarising the non-detriment finding evaluation for *Damaliscus pygargus pygargus* (bontebok) undertaken in accordance with the CITES NDF checklist. Higher scores are indicative of higher risks. The areas shaded in figure 1A demonstrate an overall moderate risk to the species and trade is detrimental, while 1B indicates the potential risk to the species after improved monitoring of the species and harvest, and the development of a biodiversity management plan. In this scenario the species is at moderate to low risk and trade is not detrimental.

3. *Equus zebra zebra* (Reference Number: Equ_zeb_zeb_May2015)

Summary of findings

Equus zebra zebra (Cape mountain zebra) is included in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). There have been several requests from the private sector for the establishment of an export quota for Cape mountain zebra hunting trophies, which is allowed for Appendix I species in accordance with CITES Resolution Conf. 2.11 (Rev.). In terms of Article III of the Convention, an export permit shall only be granted for an Appendix I species when a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species. This document details the undertaking of a non-detriment finding (NDF) (Figure 1) for Cape mountain zebra and is based on the best current available information. This information is current as of May 2015.

The Cape mountain zebra is endemic to South Africa. Though once widely distributed in the mountains of the Eastern and Western Cape provinces, the subspecies is currently limited to a number of small fragmented subpopulations that are isolated by fences. Although the species occurs in the Cape Floristic Region, it is currently more common in the Nama Karoo Biome and the Grassland Biome of the Eastern Cape. Evidence suggests that this was also true in historical times. In 2009 the total population was estimated at 2790 animals in approximately 52 subpopulations of which 17 are formally protected and 35 occur on privately owned properties. The population is increasing and it is currently estimated at 4000 individuals. These estimates are based on recent quantitative data as the numbers of Cape mountain zebra on all of the formally protected areas, which amounts to 69% of the population, are counted annually.

The Cape mountain zebra is long-lived, with mares of up to 21 years of age producing foals and stallions of up to 19 years of age remaining fertile in the wild. The reproductive rate is low due to the long gestation period of approximately 12 months and the single foal produced approximately every 25 months (range 12 – 69 months). In the presence of a full set of competitors, the Cape mountain zebra is a specialist adapted to rugged terrain and is a selective grazer. Cape mountain zebra are poor dispersers and at present dispersal is severely limited by fences. The subspecies is tolerant of human activities and adapts well within transformed landscapes.

The biggest current threat to the Cape mountain zebra is the loss of genetic diversity. Currently the national population is highly fragmented into a large number of small subpopulations and no meta-population management is practised. Prolonged hunting and habitat loss decimated the population and no less than 80 individuals remained in the 1950s. Small numbers of animals have been re-introduced elsewhere but all of these subpopulations (except for that of De Hoop Nature Reserve) originated from Mountain Zebra National Park. This has resulted in low genetic variation and a risk of inbreeding depression. Inbreeding may increase the susceptibility of individuals to the equid disease *Equine sarcoidosis*.

There are currently no CITES quotas in place for the Cape mountain zebra and currently no hunting of this subspecies takes place in any provincial or national parks where it occurs. Limited hunting of Cape mountain zebra is allowed on private properties in the Eastern Cape, but until recently translocation was the only form of harvest approved in the Western Cape. The overall aim of harvest at present is mostly population management/control and the growth of the national meta-population. Hunting of

Cape mountain zebra is monitored through CITES exports, while translocation is monitored through a permit system on a case by case basis, based on good, sound knowledge, but effects of harvesting (e.g. on heterozygosity and fitness) are not currently monitored. There is a medium confidence in the current monitoring of the harvest but confidence is limited by budgetary and capacity constraints. The national management system is more informal as there is no set structure with activities measured against a larger adaptive framework. In some cases local management plans are available but there is no approved national plan that is aimed at managing the genetic integrity of the Cape mountain zebra.

Over 69% of the national population is strictly protected within national and provincial parks, but budgetary and capacity constraints have lowered the confidence in the effectiveness of these strict protection measures. Restrictions in the form of a prohibition on hunting in the Western Cape have been very effective in preventing overuse; however it is debatable whether this prohibition has been to the benefit or detriment of the subspecies. CapeNature has recently started approving hunting applications on a case by case basis. No conservation incentives for either the subspecies or its habitat are derived from hunting Cape mountain zebra within the Western Cape. In the Eastern Cape, hunting has potentially benefitted the Cape mountain zebra, but has not necessarily incentivized habitat conservation.

In conclusion, the non-detriment finding (Figure 1) undertaken for the Cape mountain zebra as summarized in the analysis of the key considerations above, demonstrates that legal local and international trade in live animals and the export of hunting trophies at present poses a moderate to high risk to the survival of this subspecies in South Africa (Figure 2A). This however is mostly due to a lack of meta-population management and low conservation incentives derived from the harvest of Cape mountain zebra. If a small hunting quota was to be introduced, it will likely increase the economic value of the Cape mountain zebra, which is anticipated to generate species and habitat conservation incentives. If the Cape mountain zebra had a higher economic value, there would be more of an incentive to conserve the subspecies and limit the introduction of alternative high-value extra-limital species that can lead to habitat deterioration. More landowners investing in the subspecies will increase its abundance and improve its conservation status within its natural distribution range. It is however important that the quota be based on sound ecological principles, and that its impact on numbers and the overall heterozygosity of the population be monitored. The development and effective implementation of a Biodiversity Management Plan (BMP) will further improve the management and monitoring of the Cape mountain zebra. If a small quota and a BMP are introduced in parallel it will, as shown in Figure 2B, lead to a non-detriment finding for this subspecies. The following is thus recommended

1. A small cautious hunting quota must be determined through a population viability analysis that considers genetic diversity within the population. The implementation of the quota must be monitored through a research project.
2. A Biodiversity management Plan must be developed and implemented to improve the meta-population management of the Cape mountain zebra.

Upon implementation of recommendations 1 and 2 above, the export of hunting trophies can be allowed.

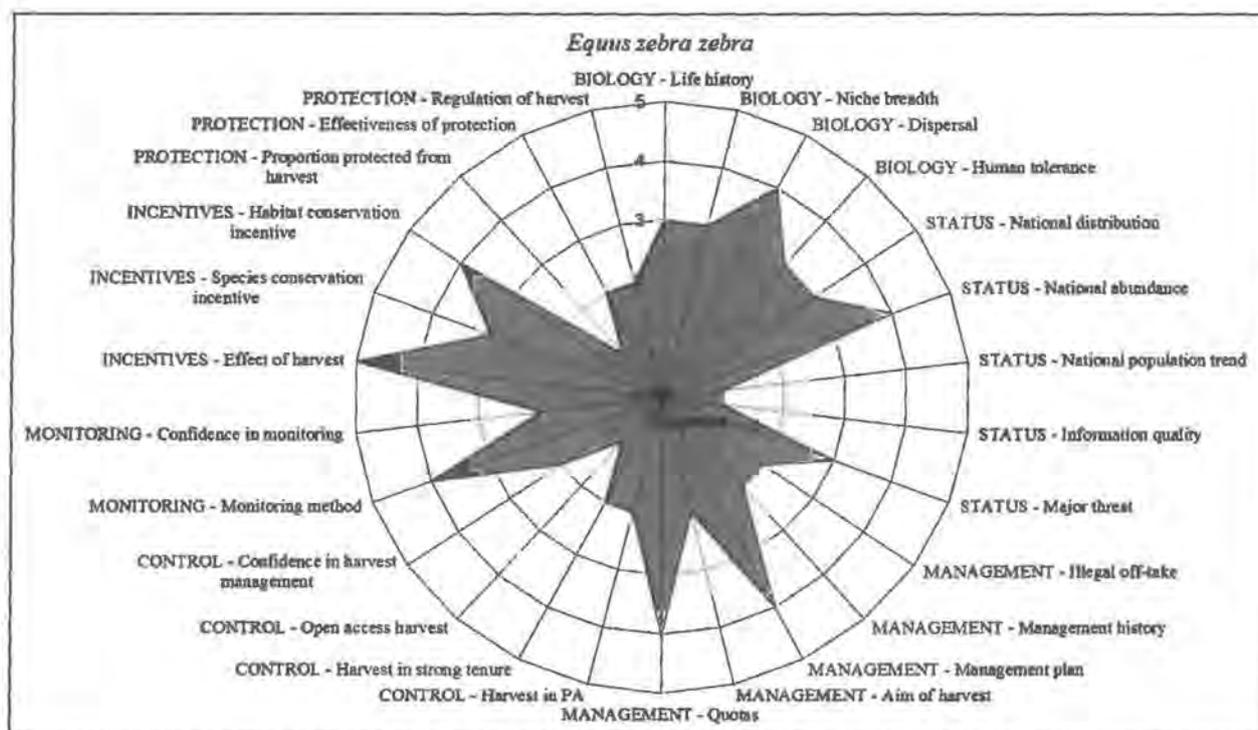


Figure 1: Radar chart summarizing the non-detriment finding assessment for *Equus zebra zebra* (Cape mountain zebra) in accordance with the CITES NDF checklist. Higher scores are indicative of higher risks. The shaded area in the radar chart demonstrates an overall moderate to high risk to the subspecies.

4. *Panthera leo* (Reference Number: Pan_leo_May2015)

Summary of findings

The South African population of *Panthera leo* (African lion) is included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). In terms of Article IV of the Convention, an export permit shall only be granted for an Appendix II species when a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species. This document details the undertaking of a non-detriment finding (NDF) assessment (Figure 1) for the African lion and is based on the best current available information. This information is current as of May 2015. This assessment only considered wild and re-introduced wild populations of the African lion and did not consider captive bred populations.

African lions are long-lived with both sexes living longer than 12 years. The species has a low reproductive rate with females replacing themselves only every second year. It is a generalist species that can utilize a wide range of habitats and prey species. Due to biological, social and anthropogenic constraints dispersal ability of both sexes is relatively poor, although some long distance dispersal of males does occur. The species is sensitive to human activity and is conservation dependent, in South Africa occurring solely in state protected areas and on a limited number of privately owned game reserves.

The African lion is considered an uncommon species within South Africa with a fragmented and restricted distribution. The total national wild population is estimated at approximately 2700 individuals. Of this, 67% are well protected within South Africa's national parks (primarily the Kruger National Park

and the Kgalagadi Transfrontier Park), where lion populations are both stable and at their ecological carrying capacity. Lion population estimates for Kruger National Park and the Kgalagadi Transfrontier Park are based on recent quantitative data. The remainder of the national population occurs in 45 small reserves where lion have been re-introduced and are intensively managed. The absence of meta-population management of these re-introduced lions undermines their conservation value. As part of a comprehensive management approach for lion, the Department of Environmental Affairs (DEA) has initiated a process to develop a Biodiversity Management Plan (BMP) for lion in terms of the National Environmental Management: Biodiversity Act (NEMBA), 2004.

There are currently no major threats to the wild lion populations in South Africa, although the management of re-introduced wild lion needs to be improved. Minor threats include overutilization, disease, poaching and reprisals for conflict with communities around protected areas. Although there are no specific figures on the illegal trade of lions in South Africa, provincial conservation authorities indicate that illegal use or trade is generally small to negligible.

In South Africa there is no national or provincial adaptive framework for quota allocation. Off-takes are managed on a local scale after applications for permits to the relevant provincial authority are accepted on merit, and most lion hunts are attended and monitored by conservation officials. In some cases there are local, informal management plans and approved local management plans for specific reserves that govern the type of lion that may be hunted, typically male lions above six years of age. Local level management plans and harvest controls are effectively implemented and monitored.

Utilization of lion for commercial purposes is mostly restricted to private game reserves where lion have been reintroduced since the 1990s. In South Africa very few wild lions are trophy hunted each year (typically less than ten lion involving less than 5% of lion hunts on private property), and trophy hunting is largely provided for by captive populations. It is estimated that at present between 3600 and 6000 lions are kept in at least 174 breeding/captive facilities in South Africa. The economic benefits to the private sector of keeping and trading in wild lion may provide some incentive for conserving the species and its habitat.

Hunting of lion is not allowed in any of the national parks and only limited hunting is allowed in some provincial state reserves, effectively ensuring strict protection of the majority of the wild population (>75% of the total lion population). Harvest of lion in the South African context is primarily for the control of damage causing (stock-raiding) lions and population management. Off-takes of lion (translocation and culling) within South African National Parks are associated with ecological management interventions and guided by a robust scientific framework. All re-introduced wild populations are at times managed through culling and translocation to regulate small populations and mimic the population dynamics processes that are absent in these populations. This ecological harvesting benefits the conservation of the species.

The NDF assessment (Figure 1) undertaken for the African lion demonstrates that legal local and international trade in lion poses a low to moderate, but non-detrimental risk to the species in South Africa (Figure 2). The species is well managed and the Scientific Authority does not have any current concerns relating to the export of lion in accordance with Article IV of CITES. It is suggested that guidelines for the hunting of wild lion be developed for the South African context making use of the most current scientific information.

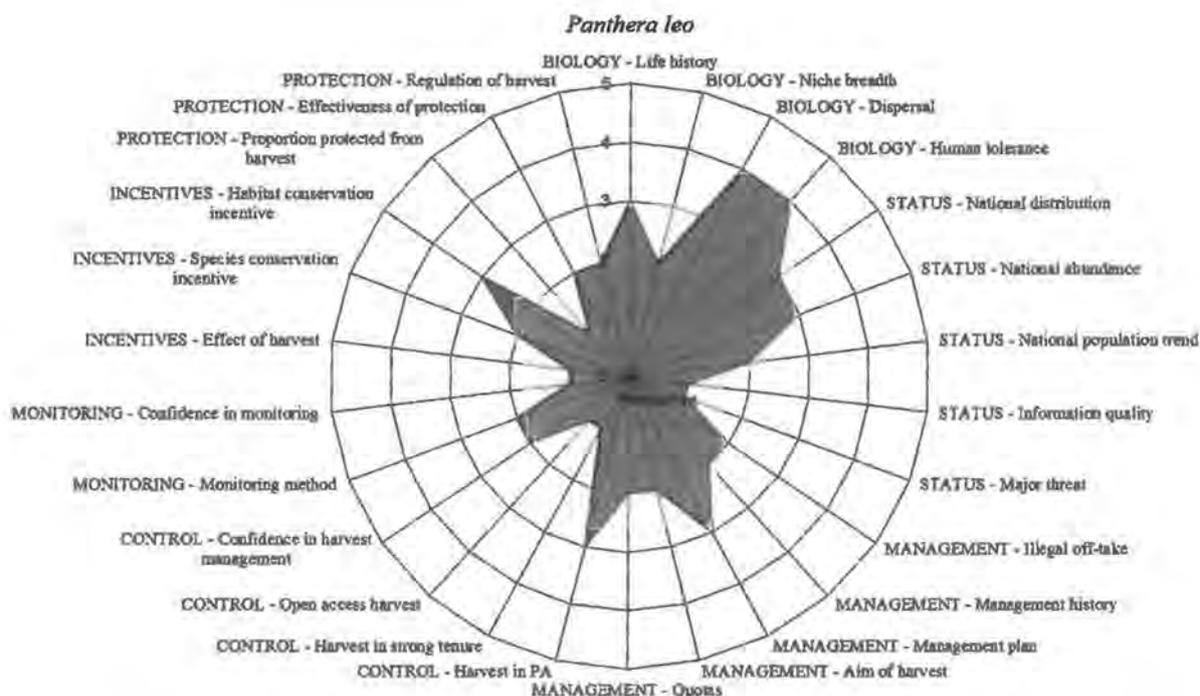


Figure 1: Radar chart summarizing the non-detriment finding assessment for *Panthera leo* (African lion) in accordance with the CITES NDF checklist. Higher scores are indicative of higher risks. The limited area shaded in the radar chart demonstrates an overall moderate risk to the species.

5. *Panthera pardus* (Reference Number: Pan_par_May2015)

Summary of findings

Panthera pardus (leopard) is included on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). In terms of Article III of the Convention, an export permit shall only be granted for an Appendix I species (e.g. in the case of a hunting trophy) when a Scientific Authority of a State of export has advised that such export will not be detrimental to the survival of that species. This document summarises the details of a non-detriment finding (NDF) assessment (Figure 1) undertaken for *Panthera pardus* at an NDF workshop convened by the Endangered Wildlife Trust in December 2010 and subsequent expert consultations, and is based primarily on data published in the refereed scientific literature. This information is current as of May 2015.

Leopards are long-lived with low reproductive rates. They are tolerant of a wide range of habitats and climatic conditions, including mountains, bushveld, woodlands, desert and semi-desert, and forests. However, like most felids, leopards are relatively poor dispersers and the degree of connectivity between populations, within and outside of South Africa, is unknown. Although more resilient than many other large carnivores, leopards are still sensitive to human disturbance and have been eradicated from at least 37% of their historic African range.

Approximately 20% (248,770 km²) of South Africa comprises suitable leopard habitat, although much of this is highly fragmented due to agricultural development, persecution and human encroachment. Today leopards are found in the remote mountainous regions of the Western Cape, parts of North

West, Limpopo, Mpumalanga, KwaZulu-Natal, the Eastern Cape, and the semi-desert areas of the Northern Cape bordering on Botswana. There is no rigorous estimate for the size of the South African leopard population, nor reliable estimates of leopard population trends at national or provincial scales.

In addition to habitat loss, key documented threats to leopards include: excessive off-takes (legal and illegal) of putative damage-causing-animals (DCAs); poorly managed trophy hunting; the illegal trade in leopard skins for cultural and religious attire; incidental snaring; and the unethical radio-collaring of leopards for research and tourism. However, the relative severity of these threats and their impact on the national or provincial leopard populations remain unknown. Trophy hunting (practised to maximize economic returns) and legal DCA control (practised to minimize economic losses) are formally though often poorly managed, while other forms of harvest are illegal and therefore unregulated. There are almost no reliable estimates for the extent of illegal off-take of leopards, though data from a few intensive studies in South Africa suggest that levels of illegal off-take exceed levels of legal off-take. The majority of leopard trophy hunting occurs on private land. Harvest of leopards is not managed consistently throughout the country; some provinces implement effective controls, others do not. Legal off-takes are poorly documented in many provinces. There is an urgent need for a coordinated national strategy which provides standardized guidelines to all provinces for the management of leopards.

South Africa is permitted under CITES to export 150 leopard trophies annually. The national hunting trophy quota was informed by two separate Population and Habitat Viability Analyses (PHVA), but the data used for the analyses (population estimates, number of DCA's and illegal removals) were poor, even though they were the best available information at the time. The national and provincial quotas are therefore arbitrary, based on speculative population estimates. Recent research suggests that trophy hunting may be unsustainable in Limpopo, KwaZulu-Natal and possibly North West. This is due mainly to excessive quotas, clumping of hunting effort, poor trophy selection, and the additive effects of DCA control combined with other forms of illegal off-take.

Nationally, monitoring of trophy hunting is limited to records of the numbers of leopards removed each year, and for legal DCA off-take the numbers of permits awarded annually. There is little to no monitoring of illegal off-take of leopards. KwaZulu-Natal and Limpopo recently instituted frameworks that combine intensive and extensive monitoring to reliably track leopard population trends at a provincial scale, but elsewhere confidence in monitoring is low.

There are likely no effective incentives for habitat conservation arising from the harvest of leopards, although trophy hunting can potentially foster tolerance towards the species. The detrimental impacts arising from the poor management of leopard hunting and DCA control likely compound rather than offset the illegal off-take of leopards.

Only a relatively small proportion of the species range is excluded from harvest as most (68%) leopard habitat in South Africa is found outside protected areas, and even protected populations may suffer strong edge effects. The cores of larger protected areas such as the Kruger National and Kgalagadi Transfrontier Parks likely constitute inviolate refuges for leopards. The imposition of a CITES quota limits the numbers of leopards trophy hunted each year, and individuals require a permit to remove a putative DCA. However, there are no restrictions on the sex, age or size of leopards that can be hunted. Illegal off-take is typically indiscriminate. South Africa is the only country of the 12 range states permitted by CITES to export leopard trophies procured through trophy hunting that allows the hunting of female leopards. Almost half of the leopards trophy hunted in KwaZulu-Natal between 2000 and 2005 were female. Research has shown that polygynous felids such as leopards are resilient to disturbance if the prime reproductive female life-stage remains intact. Hunting female leopards carries the additional risk of dependent cubs dying when their mother is killed. A population viability analysis

conducted for the South African leopard population demonstrated that the risk of extinction almost doubled when females were included on quota.

In conclusion, the non-detriment finding assessment (Figure 1) undertaken for *Panthera pardus* (leopard), as summarized in the analysis of the key considerations above, demonstrates that legal local and international trade in live animals and the export of hunting trophies at present poses a high risk to the survival of this species in South Africa (Figure 2A). This is mostly due to poor management of harvest practices and a lack of reliable monitoring of leopard populations. National norms and standards (section 9 of the National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA)) are required to address current shortcomings in the management of leopard trophy hunting and putative DCAs. Similarly, monitoring frameworks that reliably track leopard population trends should be implemented by all provinces. This will facilitate adaptive management of the harvest of the species, as well as provide insight on the effects of the illegal off-take of leopards.

The following is recommended:

- 1) Guidelines for the allocation of leopard trophy quotas must be developed and provided to all provinces by the end of January 2015.
- 2) A conditional leopard trophy quota allocation must be issued for 2015, whereby provinces must indicate compliance with the guidelines recommended in (1) above. Provinces showing non-compliance with these guidelines must not be allocated a quota for 2016.
- 3) National norms and standards for the management and monitoring of leopard trophy hunting and putative DCAs in South Africa must be developed in terms of section 9 of NEMBA and published by the end of 2016.
- 4) The norms and standards recommended in (3) above must be fully implemented by the end of 2019.

By implementing the above mentioned recommendations, a moderate to low harvest risk for the species and trade that is not detrimental (Figure 2B) can potentially be achieved.

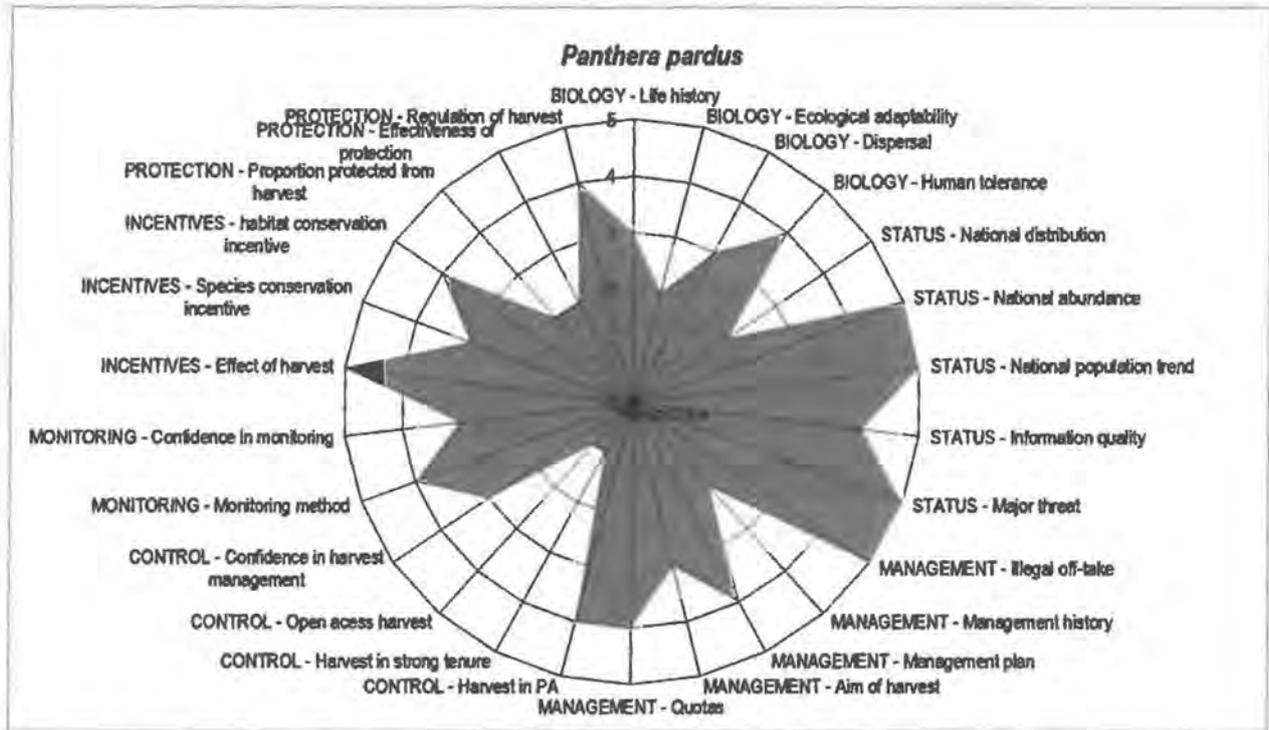


Figure 1: Radar chart summarizing the non-detriment finding assessment for *Panthera pardus* (leopard) in accordance with the CITES NDF checklist. Higher scores are indicative of higher risks. The extensive shaded area in the radar chart demonstrates an overall high risk to the species.